Applicant substitutes pending claims 27 and 28 with following clean amended claims. Applicant attaches marked up version of prior pending claims 27 and 28 in the Appendix of this Preliminary Amendment.

27. (Amended) The AGC of claim 23 wherein the adder determines the error signal as the difference between the output power of the automatic gain controlled output signal and a set-point reference signal.

28. (Amended) The AGC of claim 23 wherein the gain table is adapted with a new gain value, $G_{new}(q)$; wherein $G_{new}(q)$ is computed in accordance with the scaled output signal $P_{out}(t)$ comprising the following function:

$$G_{new}(q) = G_{old}(q) + ß(\text{set-point} - P_{out}(t));$$

wherein ß is a scaling factor $0 < ß < 1$, the set-point is a desired reference level, $P_{out}(t)$ comprises the output power of the automatic gain controlled output signal, and $G_{old}(q)$ comprises a gain table value.

Please add the following new claims:

41. (New) The AGC of claim 23, wherein the output power is based on at least one previous output power level.

42. (New) The AGC of claim 23 wherein the output power block comprises a function formed by $P_{out}(t+1) = (1 - \alpha) P_{out}(t) + \alpha|ne_{out}(t)|$ where $0 < \alpha < 1$, ne_{out} comprises an output signal level, and P_{out} comprises an output power level.

43. (New) The method of claim 33 wherein the step of estimating the output power is estimated with a single pole filter comprising:

$$P_{out}(t+1) = (1 - \alpha) P_{out}(t) + \alpha|ne_{out}(t)|$$

wherein

$$0 < \alpha < 1;$$

t comprises a time variable;

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P_{out} comprises an output power level;

ne_{out} comprises an output signal level; and

α comprises a time constant.

44. (New) The AGC of claim 23 wherein an input power level forms an index to access the gain lookup table.

45. (New) The AGC of claim 44 wherein the index *q(t)* to access the gain lookup table is formed by a function comprising:

$$q(t) = \left(\frac{TABLE\_SIZE - 1}{THSAT - THQUIET - 1} \right) (P_{in}(t) - THQUIET)$$

wherein *TABLE_SIZE* comprises a number of entries in the gain; *THSAT* and *THQUIET* comprise threshold levels, and $P_{in}(t)$ comprises an input power level.

46. (New) The method of claim 33 wherein the step of adapting the gain lookup table further comprises the step of:

forming an address to access the gain lookup table as a function of an input power level.

47. (New) The method of claim 46 wherein the step of forming the address *q(t)* comprises a function:

$$q(t) = \left(\frac{TABLE\_SIZE - 1}{THSAT - THQUIET - 1} \right) (P_{in}(t) - THQUIET)$$

wherein *TABLE_SIZE* comprises a number of entries in the gain lookup table;

$P_{in}(t)$ comprises the input power level; and

THSAT and *THQUIET* comprise threshold levels.

48. (New) An automatic gain control ("AGC") for providing automatic gain control with an adaptive gain level comprising:

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an automatic gain control circuit to provide an automatic gain controlled output signal;

an output power block for providing output power of the automatic gain controlled output signal;

an adder for determining an error signal in accordance with the output power of the automatic gain controlled output signal; and

a gain lookup table for storing gain values, wherein (i) the gain table is adapted in accordance with the error signal; and (ii) the gain table is capable of providing the gain values in accordance with an index formed by a function comprising:

$$q(t) = \left(\frac{TABLE\_SIZE - 1}{THSAT - THQUIET - 1} \right) (P_{in}(t) - THQUIET)$$

wherein *TABLE_SIZE* comprises a number of entries in the gain; *THSAT* and *THQUIET* comprise threshold levels, and $P_{in}(t)$ comprises an input power level.

49. (New) A method of providing an automatic gain control system comprising a gain lookup table with an adaptive gain level comprising the steps of:

providing an automatic gain controlled output;

estimating an output power of the automatic gain control system;

forming an error signal in accordance with the output power of the automatic gain control system;

generating an address to access the gain lookup table as a function of an input power level where the function comprises:

$$q(t) = \left(\frac{TABLE\_SIZE - 1}{THSAT - THQUIET - 1} \right) (P_{in}(t) - THQUIET)$$

wherein *TABLE_SIZE* comprises a number of entries in the gain;

$P_{in}(t)$ comprises the input power level; and

THSAT and *THQUIET* comprise threshold levels; and

adapting the gain lookup table in accordance with the error signal.

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50. (New) The AGC of claim 23 wherein the gain values are set in accordance with a function comprising:

$$g(t) = GHI \exp(-b(P_{in}(t) - THQUIET))$$

$$b = \frac{\log GHI - \log GSAT}{THSAT - THQUIET}$$

wherein $g(t)$ comprises the gain values, *GHI*, *GSAT* are fixed gain levels, and *THSAT*, *THQUIET* are threshold values.

51. (New) The AGC of claim 50 wherein *THQUIET* is approximately 75, *GNOISE* is approximately 0.1, *THSAT* is approximately 32000, and *GSAT* is approximately 0.008.

52. (New) The method of claim 33 wherein gain values of the gain lookup table are set in accordance with a function comprising:

$$g(t) = GHI \exp(-b(P_{in}(t) - THQUIET))$$

$$b = \frac{\log GHI - \log GSAT}{THSAT - THQUIET}$$

wherein $g(t)$ comprises the gain values, *GHI*, *GSAT* are fixed gain levels, and *THSAT*, *THQUIET* are threshold values.

53. (New) The method of claim 52 wherein *THQUIET* is approximately 75, *GNOISE* is approximately 0.1, *THSAT* is approximately 32000, and *GSAT* is approximately 0.008.

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